

# CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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Although the following information is quite old,  
it is submitted for whatever value it may still have.

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### 1. Experiments with high-temperature (HT) coke produced in Lauchhammer (Saxony-Anhalt)

- a. The Ministry of Heavy Industry issued a directive to start experiments with high-temperature (HT) coke in order to overcome the difficult coke situation. At first, several test charges were made with HT-coke; the result, however, was that the coke turned to powder, even under light pressure. This caused difficulties in the working of the furnace. Professors Rammler (fnu) and Bilkenroth (fnu), the inventors of HT-coke, admitted frankly that this type of coke will never be able to withstand the pressure in the blast furnace. At best, HT-coke could be used in the low-shaft furnace (Niederschachtofen). The coke can withstand a maximum compression of 50 kg/cm.<sup>2</sup> Mid-1953 the experiments were discontinued.
- b. A new directive was suddenly issued in November 1953 to continue the experiments with 500 ton HT-coke. New difficulties arose, however, when the workers refused to dump the coke from the cars as the coke turned to powder in the dumping process. After the issuance of gas and dust masks, the experiments were to be resumed. The management of the technical department and of the blast furnace department is convinced that these experiments are quite useless. The chief of the blast furnace department, (Zieger (fnu), declared that HT-coke can only be used in very small quantities.

### 2. Experiments with red mud and red mud brick (Rotschlammsteine)

Mid-1953 the Ministry requested that experiments on the extraction of iron from red mud be undertaken. Sufficient quantities of this by-product are available in the Lautz Works (Lautz, Lausitz). The mud, however, contains so much water that it cannot be shipped in ordinary freight-cars and cannot be smelted either. The iron content amounts to about 25%, is small but important for the reason that the ore is selbstgehend. According to the Leuna Works (which has used the red mud

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for years in the production of gasoline) this mud lacks the necessary drying characteristics (Trockenkapazität). Experiments of this kind were already made during the war. The dried red mud (red-mud-brick) is very well suited for smelting operations. The experiments carried out in the Eisenhuettenkombinat showed that the quality of crude iron was reduced because of the exceptionally high percentage of titanium content; however, it is possible that mistakes were made in the chemical analysis. The problem of drying can be solved through the construction of drying plants; however, no decisions have been made so far.

### 3. Experiments with ET-mastic (Kitt)

Experiments made in the electrochemical Kombinat Bitterfeld led to the development of adhesive materials which possess an extraordinary heat-resisting capacity. A few experiments, carried out on a small scale, have shown that this material is very suitable for the increase of heat-resistance of furnace fittings. An expert was appointed in August 1953, especially for the purpose of finding out which type of fittings (and to what extent) can be coated with this adhesive material. The experiments with blast tuyères (Blasformen, Windformen) achieved very favorable results. So far the life expectancy of each tuyère had been, at the most, two weeks. It now increased through the use of the ET coating to 8-10 weeks. It would have lasted longer if something special had not gone wrong with the furnace charge. Thereafter, injection points, the mouthpieces of the blast furnace gun, and finally even the hot-metal ladles, were coated with ET-mastic. It is expected that the hot-metal ladles which were originally lined with brick will, as a result, increase the volume enormously. These tests, namely to coat the whole nozzle and possibly the sander (Sandtasse) with ET-mastic are partly in the experimental and partly in the planning stage. The coating experiments are being carried out in Bitterfeld.

### 4. Fine coke sifting at blast furnaces

A sifting apparatus for fine coke (Feinkoks) is located immediately behind each blast furnace. Coke of less than 20 mm. size is passed through a roll screen. So far no material exists which is able to withstand the extremely heavy heavy abrasive effect of blast furnace coke; thus 30% of fine coke remains (Feinkoksanfall). This 30% of fine coke has to be sifted again in order to be useful (sintering plant or heating). At present the technologist of this enterprise, Ernst Altmeyer, is working on the construction of a sifter which separates this reclaimed coke into sizes of 1-10, 10-20, and 20-30 mm. Experiments in which riddles were used for this purpose proved unsuitable. Now cylinders (Trommeln) will be used to overcome this problem.

### 5. Utilization of slag

- a. At the present time experiments are in progress to improve the quality of slag because complaints had been received about its poor grade. Experts give as a reason for the deterioration of its quality the long time it takes to transport the glowing slag to the granulation plant.
- b. The Ministry of Construction requested the Research Institute of the Building Industry (Forschungs-Institut fuer Bauindustrie), Weimar, to examine the utilization of blast-furnace slag and slag sand (Schlackensand) so that the granulated slag can be employed to a larger extent for construction purposes.
- c. The management initiated a special competition in January 1954 on the "Day of the Efficiency Experts and of the Inventors" (Tag der Rationalisatoren und Erfinder) for the purpose of solving the problem of a better utilization of blast furnace slag. Special lectures were given on this subject and a motorcycle was promised as a prize for the best answer.

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